

Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

ORGANIZATION, FINANCING, AND ADMINISTRATION OF DRAINAGE DISTRICTS

H. S. YOHE

Expert on Drainage Organization



Has been rev.
--see rev.ed.
binders at
end of file.

FARMERS' BULLETIN 815

UNITED STATES DEPARTMENT OF AGRICULTURE

Contribution from the Office of Public Roads and
Rural Engineering

LOGAN WALLER PAGE, Director

Washington, D. C.

June, 1917

Additional copies of this bulletin may be obtained free from the
Division of Publications, U. S. Department of Agriculture

THE ORGANIZATION, FINANCING, AND ADMINISTRATION OF DRAINAGE DISTRICTS.

CONTENTS.

	Page.		Page.
Introduction.....	3	Levy of drainage tax.....	18
Development of drainage organizations.....	4	Financing of drainage districts.....	19
Factors to be considered before organizing a drainage district.....	5	Payment of bonds and interest.....	26
Procedure to effect a drainage organization..	7	Records of drainage districts.....	29
Engineering features.....	11	Administration of drainage districts.....	32
Determination and confirmation of benefits...	13	Necessity for adequate maintenance.....	35
		Summary.....	36

INTRODUCTION.

In the early development of the country, when more land was available for cultivation than there were farmers to till it, it was quite natural that those looking for farm lands should pass by the wet lands. Nevertheless, there were tracts of land on many farms which, because of their wet condition, were used for nothing but pasture and that only during dry seasons. In addition to these wet lands on the individual farms, there were large areas of flat lands forming swamps which were wet throughout the year, while others lying along creeks and rivers were affected so frequently by the overflow from these streams that they never were cultivated.

As population increased, tillable land became scarcer and higher in price, so that farmers who wished to extend their holdings, and others who desired to engage in agriculture, began to consider seriously whether it would not be cheaper to drain the neglected wet lands than to buy lands which required no drainage. The favorable results obtained from scattering individual efforts in reclaiming these lands led to the undertaking of drainage on a large scale. As the demand for agricultural lands continues, the drainage of wet and overflowed lands in the various parts of the country will be undertaken as rapidly as is practicable economically. To give persons interested in this kind of reclamation some idea of the type of organization which has been found best suited for accomplishing this work is the purpose of this report.

NOTE.—This bulletin is prepared to aid landowners, district officials, and others interested in forming drainage districts for the purpose of reclaiming swamp and overflowed lands. It presents methods of organizing the interested property owners and principles which should be considered in the administration and financing of drainage districts. It is particularly applicable to drainage districts in the humid regions of the United States. Because the laws in no two States are exactly alike, the subject necessarily must be treated in a general way.

DEVELOPMENT OF DRAINAGE ORGANIZATIONS.

INDIVIDUAL EFFORT.

The first attempts at drainage were made by a few individual landowners who were convinced that their wet lands would be highly productive if drained. Usually their first efforts were confined to draining wet places in their cultivated fields. Later, those who tilled land adjoining large areas of wet land extended their cultivable area by draining a few acres of this wet land. This individual effort, however, usually was costly and frequently did not produce satisfactory results. Again, it did not permit drainage of more than a comparatively few acres, for the farmer usually could not get the required outlet on his own farm to drain a large tract.

VOLUNTARY COOPERATION.

These individual attempts at drainage were followed in progressive communities by united effort made in the hope of getting more effective drainage and adequate outlets at lower costs. Several farmers who could use a common outlet, or who by natural conditions were obliged to use a common drain to reach an outlet, undertook to cooperate in constructing drains. Their attempts to agree upon the location of drains, methods of construction, and distribution of costs generally ended in a quarrel and only occasionally was it possible to complete the proposed improvements. Such united effort, while in some instances an improvement over that of the individual farmer, was not suited to carrying on drainage on a large scale. The landowners lacked responsible, continuous organization; as a unit they had no standing in the eyes of the law; they could not borrow money except as each member made himself personally responsible; they had no responsible executive head; they possessed no machinery for determining and enforcing the collection of each landowner's share of the cost; they were strong or weak, and succeeded in accomplishing or failed to accomplish their purposes in proportion only as the individuals had the capacity and disposition to work in harmony and adjust differences. These so-called organizations were not fitted to carry on work on even a small scale efficiently and at a minimum cost. When projects involving thousands of acres were to be undertaken, it developed soon that adequate outlets could not be obtained except by carrying the ditches across the lands of uninterested parties. As the landowners were not serving a public purpose, they could not cross the lands of uninterested persons unless some agreement could be made with the owners, which frequently was impossible. Further, the systems so constructed frequently would afford drainage to the lands of owners who would not join with their neighbors, and who could not be compelled to pay for the benefits thus conferred upon their lands. In addition, then,

to the inherent weaknesses, this cooperative effort was wholly inadequate in that it did not possess any power whereby all land-owners who were benefited could be compelled to pay their just share of the costs, nor did it possess the machinery for forcing any landowner to permit the construction of drains across his lands when necessary to secure outlets. In short, the landowners who wished to drain could suggest and negotiate, but they could not compel action even among themselves.

DRAINAGE DISTRICT ORGANIZATIONS.

The failure of individual and voluntary cooperative efforts to accomplish drainage economically indicated the need for a responsible, continuous organization clothed by the legislature with certain powers. To meet this need practically all the States in which are located large areas of wet lands have enacted laws providing, under certain conditions, for the organization of lands into a drainage district. When properly organized these drainage districts possess the following distinguishing attributes:

1. By law they are made a form of corporation and act through boards of officers.
2. They can borrow money and issue bonds in the name of the district.
3. They are financially responsible, and may sue and be sued in the district name.
4. They possess the machinery for making an equitable distribution of costs in proportion to benefits conferred.
5. They are authorized to levy taxes against each piece of land to the extent of benefits conferred, and to use the State machinery for collecting such taxes.
6. They have the power of eminent domain, which gives them the right to condemn property needed for carrying out the purposes of the district.
7. They possess the power to construct such improvements as are necessary to accomplish the reclamation of the lands in the district.
8. They may hold and convey property.

SOME FACTORS TO BE CONSIDERED BEFORE ORGANIZING A DRAINAGE DISTRICT.

SELECTION OF PROJECTS.

It should not be inferred, because laws have been enacted to provide the machinery for reclaiming swamp and overflowed lands, that the drainage of all such tracts necessarily will meet with assured financial success. With present land values, not every project feasible from an engineering standpoint is practicable economically; for it might be possible to buy other lands, equally fertile and not

requiring drainage, at less than it would cost to drain swamp or other wet lands. Each project must be considered solely on its own merits and as a business proposition. In other words, the question to be decided is, will the improvement prove a profitable investment?

Again, while the laws make it impossible for a few nonprogressive or obstinate landowners to prevent such improvements, the drainage of land for agricultural purposes should not be undertaken unless there is a sound demand for more agricultural land in the community, or unless settlers can be assured for the projects immediately following the completion of the improvements. Every sound project must have its origin in economic need.

Neither should a project be undertaken unless the sentiment of a good majority of the landowners is favorable to the project, for its final success depends upon their approval and support. If the project is to be constructed at a reasonable cost, every effort should be made on the part of those interested to secure the cooperation and good will of the landowners who will be affected, for a landowner opposed to the project can cause an endless amount of trouble, delay, and expense. In communities where the results obtained from drainage are not generally known a proper presentation of what it is proposed to do and of the expected benefits frequently will overcome opposition.

EMPLOYMENT OF COMPETENT ATTORNEY.

It must be remembered by the promoters that a drainage district is a creature of the law; it comes into existence by and derives its powers from the law, and hence the necessity for a strict compliance with the law. This suggests the employment from the beginning of an attorney who will take a personal interest in the district and who not only will familiarize himself with every detail of the drainage law and observe its requirements strictly, but who will study the decisions by the courts on drainage laws. Many costly errors might be avoided if the attorneys of drainage districts would make it their business to study the experiences of other districts in the light of court decisions. Generally an attorney who has had experience with the organization of drainage districts is to be preferred to one who has had no such experience. If an attorney is not familiar with the organization of drainage districts he should not agree to serve unless he is willing first to make a thorough study of the subject. There are no short cuts in the organization of drainage districts; if the law states that certain things shall be done in certain ways, no course short of compliance with the law will suffice. Carelessness as to the contents of papers, or failure to file them at the proper time with the proper officials, has caused districts no end of litigation and expense, and in some cases has resulted even in the districts being unable to sell their bonds. From the filing of the first paper the

attorney for the district should remember that his work in a large measure will affect the salability of the district's bonds.

As no drainage district comes into being until after the filing of the petition and its approval by the court, the selection of an attorney to initiate proceedings rests with the petitioners. Before they engage an attorney, a definite written agreement should be had covering the question of fees he shall receive for any services he may render. It follows that upon the organization of a district it becomes the duty of the officers to retain an attorney by contract.

PROCEDURE TO EFFECT A DRAINAGE ORGANIZATION.

THE PETITION.

Number of petitioners.—The first step in promoting a drainage district is to prepare a petition signed by the required number of landowners for presentation to the proper official, as designated by the law.

The laws of the States differ as to the number of signers to the petition. In some States it must be signed by a majority of the landowners living in the district; in others by the owners of a majority of acres; in one State a petition may be presented by but three landowners and in several by only one. Many laws have two provisions as to the number of signers to the petition, a compliance with either one being all that is necessary. After a petition has been signed and presented to the court or other proper official, it has been held in several instances that a landowner has no right to withdraw his name.

Requisites of the petition.—As to the subject matter of the petition, most laws require that it shall represent that certain lands are subject to overflow or are too wet for cultivation, and set forth in general terms the boundary lines of the lands so affected which it is proposed to include in the district, the names and addresses of the owners of land within the district, together with a description of the lands owned by each, and the approximate starting points, routes, and termini of the proposed improvements. Usually a statement is required also to the effect that the drainage of the lands in question will promote the public health, convenience, benefit, and welfare.

Too much care can not be taken in the preparation of the petition. Unless it contains all the facts the law requires to be set forth, and unless it is signed by the requisite number of landowners, then it is no petition. If the court or officials should overlook the failure of the petition to fulfill all requirements, and should act on such a petition, approving the formation of the district, and if under such a defective petition, a district should proceed to make costly surveys and incur other indebtedness, and then, when it is attempted to assess the landowners for their shares of these costs, a landowner should object

on the ground that as the petition did not comply with the law no district ever had been created, the courts would be obliged to decide against the district. The necessity for caution in the preparation of the petition therefore becomes apparent; and yet, recently in a State where the law specifically requires that the petition set forth four facts, only two were indicated in the petition. It was assumed that a district existed, surveys and plans were made, but some of the land-owners opposed to the undertaking raised the question that the petition was not sufficient in law, or, in other words, that the district had not been organized legally. The success of their contention would mean the filing of a new petition and repetition of the whole procedure. Such action always is costly and tends to create a feeling of indifference among those desiring drainage, sometimes even causing them to join with the opposition. The question that comes naturally to mind is: Why did not the petition set forth the four facts mentioned in the law? The only answer that can be made is that the attorneys who prepared the petition followed an incorrect form instead of familiarizing themselves with the drainage law of the State and following it. In the formation of a drainage district no form should be followed unless it has been checked carefully by the attorney of the district to see that it meets the requirements of the law.

A description of the location and boundaries of the proposed district is included so the officer to whom the petition is presented may pass intelligently upon the desirability of establishing a drainage district and decide whether drainage would prove beneficial. Generally each particular tract to be included in the district need not be described with specific detail, but statutes requiring the names of the owners and the acreage and description of holdings must be complied with strictly. The erroneous inclusion of lands within the boundary of the district generally will not make the petition defective; neither will the omission of lands concerning which there is some doubt as to whether they should be included, for they can be brought in at any time before assessments are confirmed. Lands already in one drainage district may be included in another if they will derive any benefit from the subsequently formed district.

The starting points, routes, and termini of the proposed improvement need be described only approximately. A description given as "somewhere near" a certain section has been held sufficient. Naturally at this stage of the proceedings it would be impracticable to describe accurately the locations, starting points, and courses of the improvements. The laws have provided for detailed surveys to ascertain these.

The petition should close with a request that the court appoint a competent engineer to make a preliminary survey to ascertain the lands which will be benefited by the proposed system of drainage,

and whether, in his opinion, drainage of the lands is practicable and desirable. Under the drainage law of at least one State no engineer is appointed at this stage of the proceedings, but a hearing is had on the petition.

Bond for organization expenses.—In most instances the petition must be accompanied by a bond in amount sufficient to pay for preliminary surveys and organization expenses in case the district is not formed, or in such other amount as the court may require. In one State the petitioners may accompany the petition with articles of association, obligating themselves personally to pay such expenses in proportion to their respective acreage in case the district is not formed; and in at least two other States the officers of the district are authorized to levy a uniform tax, not to exceed 50 cents per acre on each acre of land in the proposed district, to be used in paying preliminary and organization expenses.

Filing of petition.—In many States the petition is filed with the county court; in others with the clerk of the county or district court; and in still others with the county auditor or board of county supervisors. For convenience of discussion it will be assumed here that original proceedings are had before the county court.

Those interested in forming the district should realize the importance of filing the petition with the officer designated by the law under which it is desired to form the district; yet in States having more than one law petitions have been filed with an officer designated by a law under which it was not the desire or intention of the landowners to operate. Subsequent proceedings were had under the law originally intended; but, as it of course developed, these proceedings were void because the officer had no jurisdiction for the simple reason that the petition was not filed with him.

THE PRELIMINARY REPORT.

In compliance with the request made in the petition, the court appoints a competent engineer or a board of viewers composed of an engineer and two disinterested freeholders to make a preliminary survey. Under laws providing for a board of viewers, this board serves to make the plans and assess the benefits. Within a specified time the engineer must submit to the court his report giving a general idea of the location, character, and cost of the proposed improvements and indicating the lands that will be benefited. The report should contain also such other general suggestions as seem proper. This report, it should be remembered, is merely advisory to the court, to aid it in deciding as to the establishment of a district, and is not conclusive as to the actual cost of the improvements, their exact location and description, or of the amount which it will be necessary to assess against the lands in the district.

NOTICE OF FILING OF PETITION AND REPORT.

Upon the filing of the engineer's report, all persons holding property within the proposed district should be notified of the petition and report pending in court, and called upon to appear before the court at a certain time and place to show cause in favor of or against the establishment of the proposed district. In many States this notice is served on the landowners personally; in others, by publication only. Usually, nonresident landowners are served with notices by publication only.

Some statutes prescribe a particular form of notice and in such cases the form must be followed, but in most laws no such form is given. Whatever form this notice may take, it should be remembered its purpose is to secure to the owners the opportunity to protect their property from an unjust lien or tax; therefore, it should be so full and clear as to disclose in a general way to persons of ordinary intelligence the effect the granting of the request of the petitioners would have on the lands to be included in the proposed district. When notice is given by publication, the publication must be made through such a medium and in such terms that the owners of the property will be reasonably certain to receive information as to what it is proposed to do, either by their own personal reading of the publication or through those in charge of their properties. It must inform them also as to when and where they may be heard. Should the law not specify the place and date for hearing, care must be taken that both the place and date determined upon are such that with reasonable effort those who will be affected will be able to attend in case they wish to offer objections. Usually the law specifies the shortest time within which a hearing shall be had. When the statutes provide a definite method for serving notice this must be followed strictly. Most statutes require that the published notice shall designate the boundaries of the district as well as the holdings of the owners, so that all property owners may ascertain easily whether their property is included.

HEARING ON PETITION.

On the day set for the hearing the court gives every landowner an opportunity to present his views as to the advisability of establishing a district. If the petition is dismissed costs are apportioned against the landowners. Under the laws of some States landowners who think they will be damaged by the improvements may file claims for damages a certain number of days prior to the date set for the hearing.

Following an order of the court directing the establishment of the district, the land involved becomes segregated for the purpose of drainage from other lands, and is known thereafter by the name conferred upon the district by the court. The distinguishing features of

the district henceforth are, that as long as any act remains to be done the district is presumed to be in existence, with a board of officers through which such action can be and should be taken; that it can borrow money in the name of the district; that by the power of eminent domain it can acquire by condemnation or purchase such lands as are necessary for carrying into effect its purposes; and that it has the power to raise money for meeting its obligations by levying taxes on the lands that will be benefited by the proposed improvements.

GOVERNING BOARD OF DRAINAGE DISTRICT.

Each district has its own board of officers, usually called commissioners or supervisors. However, in a few States this board is not appointed until after the final hearing on assessments. For convenience, the drainage board will be referred to as "commissioners."

The commissioners generally are elected by the landowners from their own number, though frequently the first board of commissioners is appointed by the court, acting on the advice or recommendations of the landowners. In some States certain county officials are designated by law to serve as the officers of drainage districts in their respective counties.

In States where the commissioners are selected from among the interested landowners, the laws require that as commissioners they shall take a prescribed oath within a specified time after election. These oaths should be filed in the records of the district. If the oath is not so taken the person appointed or elected is, under some laws, regarded as having declined to serve as a commissioner, and the court is authorized to appoint another person. The act of any one serving as a commissioner without having taken the required oath is void. Therefore it is essential that all preliminary acts which the law requires of commissioners to qualify them as such should be performed before they undertake to act.

ENGINEERING FEATURES.

SELECTION OF COMPETENT ENGINEER.

The commissioners of the district employ an engineer to prepare a plan of drainage for the district. Before selecting this engineer they should make thorough investigation as to his competency and feel reasonably satisfied that he has had sufficiently wide experience to enable him to design and construct the improvements properly. Too frequently an engineer who has little knowledge of the theory of drainage practice, and who has had even less experience, is selected in preference to a man of wide experience and training, simply because the former can be secured for a little less money. So-called "cheap" engineering service usually proves the most expensive. Only the competent engineer is qualified to decide which of several

plans will be most efficient and most economical. A contract between the district and the engineer should cover the various matters upon which they have agreed and the compensation which is to be paid.

"CHEAP" DRAINAGE NOT ECONOMICAL.

There is another phase to the engineering side of drainage districts which the commissioners must consider. Inadequate drainage improvements are not always to be laid at the door of the engineer. Landowners often demand "cheap" drainage; they will pay a certain amount but no more. There are a number of improvements which the landowners contend are inadequate and from which they assert they derive no benefits. In many such instances investigation will reveal that the engineer had prepared plans that would have afforded ample relief, but because the landowners declined to spend what such a system would have cost, the ditches were reduced in size materially. The commissioners should impress upon the landowners that it is economy in the end to construct improvements of ample capacity and that the engineer, and not the landowner, is the better qualified to determine the needs of the district and the adequacy of proposed improvements. The engineer should be instructed to prepare his plans regardless of any information which may come to him as to the amount the landowners may be willing to put into construction, and to design the most feasible and economical plan and let the cost take care of itself.

Usually, when the landowners fail to get the relief they expected, they determine to have better drainage and to improve the existing system. This means starting over the whole proceeding, and involves additional expense. An example of the waste of money resulting from such procedure is in a district costing about \$450,000, of which one of the drainage commissioners recently remarked that the "piecemeal" method pursued cost the landowners at least \$100,000 more than if they had followed the plan originally designed which the commissioners wanted and the landowners rejected.

It frequently is difficult to raise money to complete a drainage project the cost of which was underestimated originally, or for the purpose of reconstructing an improvement which originally was represented to be adequate but proved inadequate. The idea of "cheap" drainage should be supplanted by the idea of "adequate, economical" drainage. An eminent consulting engineer recently remarked that in connection with drainage improvements the "expenses and final costs are too frequently underestimated, with the result that sufficient money is not available to complete an adequate system." It always is better to overestimate than to underestimate the cost.

APPROVAL OF PLANS BY CONSULTING ENGINEER.

It would be real economy, at least on large projects, for the commissioners to employ a consulting engineer to pass upon the engineer's report, plans, and specifications after he submits them to the commissioners for examination and approval, and before they are filed in court. Some of the landowners may object to the expenditure, but approval by a consulting engineer gives the bonds of the district a much wider market, and at the same time the additional price the bonds will command usually will be considerably in excess of the fee of the engineer.

COMPETENT ENGINEER TO SUPERVISE CONSTRUCTION.

A competent engineer should be employed to supervise the construction of the improvements. He should have full charge of the work and be the agent through whom the commissioners deal with the contractor in matters affecting it. His decision as to whether the work done complies with the specifications should be final and be upheld by the board of commissioners. No accounts should be paid or work accepted without the engineer's approval. The commissioners, who usually do not possess sufficient technical knowledge to enable them to decide intelligently whether the improvements comply with the plans and specifications, must rely upon the engineer for advice before accepting or rejecting any completed work.

The high cost of employing a cheap engineer during the construction period is shown in the case of a district in which the improvements cost approximately \$85,000. A local engineer with no experience in drainage work was employed to supervise the construction. He made the required inspection and reported that the work complied with the plans and specifications. Acting upon his report, the commissioners paid the contractor in full. Later it developed that the drainage ditches were not giving the relief they should, and another engineer was employed to inspect the construction. It was found that several miles of the main ditch had not been dug according to specifications. Reconstruction cost the district \$7,000. Later, in commenting on this item of expense, one of the commissioners said that the district would have saved about \$3,000 if it had secured an experienced drainage engineer originally and paid him twice as much as was paid the engineer employed.

DETERMINATION AND CONFIRMATION OF BENEFITS.**BOARD OF ASSESSORS.**

In some States, when the engineer's report is filed, a petition is filed by the commissioners asking that the court appoint a board of assessors to determine and assess the benefits which each tract of land will receive from the proposed improvements; in other States two

disinterested persons are appointed to serve with the engineer in making this assessment. However, in many States this appraisal or assessment of benefits is made by the commissioners.

NECESSITY OF ADEQUATE RECORDS.

It should be remembered that the benefits assessed form the basis for taxing each landowner for his share of the costs, and that unless these assessments are valid the taxes can not be enforced. Drainage taxes generally are questioned by the property owner, and it is in connection with the assessments that most of the litigation occurs. This suggests the necessity for the assessing board to keep carefully adequate records which will show upon what basis the assessment was made against each tract. If, by the records, it can be shown to the court that the benefits were determined by just principles, it is not likely that the findings of the board will be disturbed. However, such a showing can not be made if, as is sometimes the case, the notes of the board are made on scraps of paper, envelopes, and small pocket notebooks. Before taking up the field work of assessments, the law should be consulted and forms prepared to comply with it, so that the field work may proceed rapidly and systematically. All field data thus collected should be carefully and systematically preserved.

IMPORTANT POINTS IN MAKING ASSESSMENTS.

All benefited property assessable.—In making the assessments many State laws require that each 40-acre tract, or other subdivision of land according to ownership, shall be considered; also, that consideration be given to the benefits conferred upon highways, railroads, rights of way, and other property. If the board of assessors feels that certain lands not included within the boundaries of the district will be benefited by the proposed improvements, these lands also should be assessed. Notice similar to that served on the landowners of the filing of the petition and preliminary report of the engineer should be sent to the owners of lands so included, and a similar hearing granted. At the same time that benefits are being assessed, a record should be made of all damages to property by reason of the construction of the drainage system. Properly signed releases should be obtained from those who agree not to file any claims for damages.

In making the assessment of benefits the assessors must remember always that their duty is to determine the total amount of benefit that will accrue to each tract. Usually the only limitation found in the statutes and constitutions upon the amount that may be raised by special assessment against property in a drainage district is that the amount shall not exceed the benefits. These benefits may be several times greater than the cost of the improvements, or they may be less, though the latter condition seldom exists. The point is to

consider benefits only and to assess the full amount. Mention of this is made because in at least one district, instead of assessing benefits the board assessed costs, and if the error had not been corrected the district would not have had enough funds to complete the work, as the cost was underestimated. This would have made it necessary to go over the whole proceeding. It always is advisable to assess the full amount of benefits, even if such amount be much in excess of the cost of the improvements. By so doing, in case more money be needed, it will not be necessary, under many laws, to go into court again, as taxes equal to the benefits approved by the court may be levied by the drainage commissioners.

Assessments must be based on benefits.—No attempt will be made in this bulletin to discuss in detail the various factors to be taken into consideration in making assessments. The settled rule is that in making special assessments for drainage improvements the amount of the assessment must be based on the special benefit which it is estimated will be conferred by the improvements. This benefit must relate to the betterment of the land for a purpose to which it may reasonably be put. Lands which before drainage were useless might, after drainage, be suitable for manufacturing, but as it may be quite evident that they will be used for agriculture, they should be assessed on the basis of benefit conferred upon them for agricultural, and not manufacturing, purposes. The situation of lands with respect to natural drainage is a controlling factor in their value. It has been held that as the purchaser of naturally well-drained land pays for a favorable situation in the first place, he can not be compelled to contribute to a drainage project organized to drain adjacent lowlands unless he derives some special benefit from the work. The assessors should feel reasonably certain that they can show a special benefit to such lands before placing an assessment against them. If the only benefit conferred upon land is an advantage such as is general to the public, no assessment can be made.

Educational work necessary.—Unless the assessment of benefits is made with a view to doing justice to all, serious objection is sure to follow. Those charged with making assessments usually are conscientious in the performance of their work, though of course they may assess some land erroneously, and to such assessments it is proper to object. However, many objections are due to the fact that landowners are not acquainted with the benefits that result from drainage. They must be educated, and here is the opportunity for the commissioners to show superior ability. Landowners naturally want to feel that their interests are being guarded. By acting openly and pointing out the benefits received from drainage in other sections, the commissioners will gain the confidence of the landowners, and few objections will be raised to the assessments. If the commission-

ers can refer the property owners to districts in which untilled land or swamp land has been increased by drainage to \$50 or \$100 per acre in value, and has been made to yield good crops every year, naturally the property owners will become interested. Reference to cases similar to the following would serve for this purpose:

In a district, which cost about \$40 per acre, it was desired to make another assessment for installing additional pumping equipment and cleaning out existing ditches. The assessment against a certain tract would have been \$12 per acre, and the owner objected. When a member of the board pointed out to him that the value of his crop, per acre, the year before the assessment was made was almost five times the assessment, and that by the installation of the additional pumping equipment he would be insured of a crop every year, the objection was withdrawn at once. In another State, lands which were worthless swamps have been transformed by drainage into some of the best sugar-beet lands in the State, and now are worth \$150 per acre. In another district land which was overflowed every year during high water and which never could be used for anything except pasture, was converted by drainage into high-yielding corn land and now can not be bought for \$150 an acre. Again, from lands which a few years ago were nothing but swamps the landowners, as a result of drainage, are taking 75 to 95 bushels of corn and cotton worth \$75 to \$125 per acre. Any number of such cases can be found, and if serious opposition is developing the commissioners can do nothing better than to ascertain the results obtained in sections where drainage has been practiced for some time. Frequently there are near-by districts possessing the same soil and the same drainage conditions as the proposed district. These will serve as excellent examples. Of course, an obstinate landowner can be forced, but it always is better for the district if the landowner can be persuaded to cooperate.

Preparation of assessment roll.—After all the necessary field examinations have been made by the commissioners, they compile an assessment roll. This should give the name of the owner of each piece of property assessed, a description of the property, the number of acres, the amount of benefits shown in dollars and cents assessed against each tract, the amount of property taken for right of way and its value, and any damages which may be sustained by reason of the construction of the improvements. Even if the law requires a classification of benefits only on a percentage or some other basis, it always is advisable to indicate the benefits to each tract in dollars and cents.

Notice of assessments to landowners.—Upon completion of the assessment roll it is filed with the court, and notice is given to all persons affected. This notice should contain a description of the lands

assessed, the amount of benefits so assessed, expressed in dollars and cents, and should inform the owner of the lands when and where he may appear to object to the assessment made against his lands, if he so desires. If notice is given by publication only, the name of the owner of each tract should appear opposite the tract described. At this hearing, if any landowner considers he has not been awarded proper damages he may be heard on this subject also.

The necessity for care in the preparation and serving of notice at this time can not be emphasized too strongly, for upon the assessment roll, as finally approved by the court at the time of this hearing, rests the enforceability of the taxes. The descriptions given in the notice should be checked carefully against those contained in the engineer's report. In notice by publication only it has happened that the descriptions given did not correspond with those in the engineer's report and plans, and as a result the lands were held not to be in the district. Subsequent taxes levied against these lands were not collectible. An eminent attorney who has approved many drainage bonds has said that fully 75 per cent of the drainage district records he has refused to approve are faulty or defective in descriptions given in the notices at this stage of the proceedings. A defective record means that bonds can not be sold. Of course, the commissioners do not prepare these notices, but it is their duty to impress upon their attorney the need for care in their preparation.

Approval of assessment roll.—At the hearing the court, after making such changes in the assessment roll as it deems necessary to do justice to all, enters an order on its records approving the roll. After such approval the commissioners have no power to make any change without first giving notice to all the landowners. If it should develop that benefits assessed are less than the estimated costs, the district must fail, for the only way under the law to raise money to pay for the improvements is by taxing each parcel of land, and these taxes must be based on benefits conferred. Further, they must be spread in such a way that no land will be burdened more than its proportionate share of the cost of the improvements. If the system costs more than the total benefit which the land would derive, it is obvious that sufficient money could not be raised to meet this cost. From the findings of the court, as to both benefits and damages, each landowner has a right to appeal to a higher court within a certain time, but unless the appeal is taken within that time he is considered by the law as satisfied with the assessment made against his land and the damages awarded. A copy of the assessment roll, showing the lands affected by the assessment, should be filed with the county recorder, so that the lien may be recorded. This copy should be prepared by the secretary of the district.

LEVY OF DRAINAGE TAX.

After the assessments of benefits are approved the court, at the request of the drainage commissioners, makes an order levying against the property in the district a tax equal to the estimated cost of the improvement, with 10 per cent added for contingencies. The amount of the tax levied against each tract must be in proportion to the benefits which the assessment roll shows will be conferred upon the tract. Whether the law requires it or not, it always is advisable to levy taxes 10 per cent in excess of the estimated cost, for usually some small additional costs arise as the work progresses.

RIGHT TO PAY TAXES IN ONE AMOUNT.

After the tax levy has been made the landowners are accorded a certain time within which they may pay the taxes in one amount. The commissioners should make every reasonable effort to inform the landowners of this privilege, for unpaid drainage taxes usually draw 6 per cent interest. Frequently many landowners could and would pay their taxes within the prescribed time if they understood that unpaid taxes draw interest. In Iowa, Illinois, and Minnesota it is not uncommon to find as many as 50 to 60 per cent of the landowners paying their drainage taxes in cash within the prescribed period following the tax levy. In one county in Iowa, where a large percentage of the taxes are always paid shortly after being levied, the county auditor who has charge of the tax levies always sends a letter to each landowner calling his attention to the economy of immediate payment. When the landowner understands that it will be necessary to issue bonds if his drainage taxes are not paid within the prescribed time after they are levied, and that then he must pay not only the taxes levied but also the interest on the bonds, he will make an effort to pay his drainage taxes before bonds are issued.

TAXES PAYABLE IN ANNUAL INSTALLMENTS.

The laws of many States provide that taxes remaining unpaid shall be collected each year in amounts equal to the face of maturing bonds and interest due that year. Unless the law requires that the taxes be paid in equal annual installments, they should be so divided as to make the smallest installments fall due at the time the property owners, under normal conditions, will be receiving the smallest return from the lands. This period ordinarily is the first two to five years after the taxes are levied, as usually it takes several seasons after the improvements are completed to put the land in a good state of cultivation. Then, too, as taxes are paid off each year the amount of outstanding taxes becomes smaller, with a corresponding reduction in the amount of interest which must be collected.

Another point must be considered in connection with the final installments before determining during what years the heaviest taxes should fall due. Like others, drainage improvements deteriorate in usefulness each year and hence require maintenance and repairs. To make these repairs the laws provide for levying annually a maintenance tax in addition to the regular taxes. While few districts have done this, it is a practice which should be adopted generally.

Whether the taxes extend over a period of 10, 20, or 30 years, three factors should be considered carefully in fixing the amount of unpaid taxes to fall due each year. These are: (1) Small return from the land in the early years, (2) heavy interest charge on unpaid taxes during the early years, and (3) deterioration of improvements. In districts where it is practically certain that all the land can be put under cultivation almost immediately after the improvements are constructed, payment of the final installment of taxes at an early date is desirable. In the majority of districts the taxes to retire the bonds are paid in 10 annual installments.

FINANCING OF DRAINAGE DISTRICTS.

There are three methods of financing drainage districts:

1. Each landowner pays his share of the cost in cash in advance of construction.
2. The district issues certificates or script.
3. The district issues bonds.

CASH PAYMENTS.

This method is used seldom, because it is not practicable except in sections where the landowners are financially able and the districts embrace but a few hundred acres. As pointed out, one reason for the formation of drainage districts is to furnish a method whereby the landowners may spread the payment of costs of improvements over a number of years.

CERTIFICATES OR SCRIPT.

Issuing certificates of indebtedness due at such times as it is expected the district will have funds generally is not to be recommended and seldom is done, because these certificates usually must be sold for less than their par value. Further, those bidding for the contract will make inquiry, before submitting their bids, as to whether they are to be paid in cash or by certificates or script. If the contractors are to be paid in script, they usually will make their bids considerably higher so as to allow for the necessary discount they must accept if they attempt to cash the certificates. Of course these certificates are so arranged as to mature by the time the annual taxes are collected, and they bear interest from

the date of issue until paid; but the contractor is not in the investing business. In States where county officers have charge of the administration of drainage districts and issue the certificates in the name of the county, the financing of districts by certificates works out somewhat better.

BOND ISSUES.

Financing by issuing bonds is the method most generally practiced and is followed almost exclusively in the larger districts.

After the time within which taxes can be paid in one amount has passed, which is seldom less than 30 days, the commissioners arrange to sell the district bonds amounting to the difference between the total tax levy and the amount paid in cash. This action is necessary to obtain cash to carry on construction work. Of course until all the bonds are paid they draw interest, and this is why the landowners must pay interest on unpaid drainage taxes. These bonds usually extend over a period of 10 to 20 years.

Factors determining maturity of bonds.—Generally no part of the principal of the bonds is paid until the end of the third or fifth year. The time when the first installment of bonds shall fall due should be determined by the merits of each project—that is, its earning power. Most laws state that it shall not be later than the end of the fifth year. If as much as 75 per cent of the land in the district is under cultivation before making the drainage improvements, it usually is safe to say that the district should be in a position to pay off some bonds at the end of the second year. If none of the bonds can be retired at the end of the fifth year from date of issue it is questionable whether conditions are such as to warrant drainage of the lands at that time. Care must be taken to see that the date of the first maturity is not too early, for the landowners should have the opportunity to harvest at least one or two crops before they are called upon to pay any of the bonds.

It is now generally agreed that the life of a drainage improvement should determine the length of time over which the bonds should extend. The life of a drainage improvement varies, depending much on the nature of the soil and the character of improvements constructed. It has become the general custom to have the last series of bonds mature not later than the twentieth year, and in many districts the bonds are all paid in the course of 10 or 12 years. Just when the first and last series of bonds should mature, and in what amounts, are questions which must be determined in accordance with the provisions that have been made for collecting taxes. Those charged with preparing the bonds should see to it that they do not fall due before the date on which taxes become delinquent, otherwise the funds on hand may not be sufficient to pay the bonds and interest. It would seem unnecessary to call attention to such a

matter, yet such cases have occurred. In one instance the bonds and interest fell due in August, while taxes were not due until the following December. The district officials should give this matter very careful attention.

Amount of bond issue.—In some States recently enacted laws contain a provision limiting the amount of bonds which may be sold to 90 per cent of the total amount of taxes levied. This limitation adds to the marketability of the bonds and seems a wise precaution. By thus collecting more taxes than are necessary to pay the maturing bonds, in case some landowners do not pay promptly or it becomes necessary to sell lands for taxes, there will be on hand enough money to permit bonds and interest to be paid promptly, which is highly essential. Nothing has so evil an effect upon drainage reclamation, or so adds to the difficulty of selling drainage district bonds at a fair, reasonable price, as the failure of a few districts to make prompt payment of bonds and interest as they fall due. Of course, the limiting of the bond issue to 90 per cent of the taxes levied does not mean that the landowners will receive only 90 cents for each dollar they pay in taxes. As years go on the funds on hand will increase, and when the last installment of taxes must be collected it can be reduced by the amount of the surplus on hand. In certain districts now in existence, if taxes continue to be paid as they have been in the past, it will not be necessary to collect the last installment of taxes, and only a part of the next to the last.

From what has been said regarding the use of surplus in case certain landowners do not pay their taxes, it should not be inferred that the landowner who pays his tax promptly must pay for the one who does not. The law makes the drainage tax a lien on each tract of land against which an assessment has been made, and no indebtedness against the land except general State, county, school, and road taxes can be satisfied before the drainage tax. Practically all laws contain provisions for rigidly and promptly enforcing the payment of drainage taxes, and for heavy penalties which attach as soon as taxes are past due.

It might be inferred from what has gone before that the amount of taxes which can be levied is determined some time in advance of the issuance of bonds. If the drainage commissioners proceed in the order prescribed by the law this would be the case, but frequently the total amount of taxes levied and the amount of drainage bonds to be issued are determined upon at the same time. In districts where this method is followed the amount of taxes levied should be 10 per cent greater than the actual estimated cost of the improvements, and bonds should not be issued in excess of 90 per cent of the taxes levied. Particularly should these precautions be taken in States where no limitation is placed on the amount of bonds which

may be issued. There have been cases in which bonds were issued to cover not only the cost of construction of the system but also the interest which would fall due on the bonds during the several years next after their issue. Such procedure requires the landowner to pay interest on interest. If the laws do not require the landowners to pay any tax during the first several years, then interest on bonds during this period must be included in the original bond issue; otherwise there would be no funds to pay the interest as it fell due. Such financing, however, is expensive and should not be practiced if it can be avoided.

Type of bonds.—Drainage bonds now are generally of the serial type; that is, a certain number fall due each year. The good feature of this type of bond is that as the district pays off bonds the landowner is relieved of the payment of further interest. As the investing public prefers a bond with interest payable semiannually, drainage bonds should comply with this demand. Such a bond will find a much wider market and command a better price than one on which the interest is payable but once a year.

Interest rate of bonds.—When it comes to determining what rate of interest bonds should bear, a question is presented on which most drainage commissioners would do well to consult reputable, responsible bonding houses. Usually the laws prohibit the sale of bonds bearing more than 6 per cent interest. There may be those who think that the landowners would pay less interest if the bonds carried 5 per cent interest, but the district might be obliged to sell such bonds at a discount that in the end would make them considerably more expensive to the landowners than a 6 per cent bond. Again, there may be others who argue that if the bonds paid 7 per cent interest they could be sold at a premium, but this does not follow necessarily. The individual investor in bonds looks with suspicion on any bond bearing 7 per cent interest; he concludes there must be elements of risk in it which he does not care to take. As the bond house in turn disposes of all bonds it purchases, it realizes that it will be more difficult to sell a 7 per cent bond than a 5 or 6 per cent bond, and naturally it will not offer any more for a 7 per cent issue than for one bearing a lower rate. In fact, many bond dealers say they would pay less for a 7 per cent drainage bond than for a 6 per cent bond, and many others will not purchase the former at any price.

In some States drainage districts can dispose of bonds yielding $4\frac{1}{2}$ per cent and 5 per cent interest at a premium, while in other States bonds bearing 6 per cent must be sold for less than par. The principal reason for these differences is the condition of the bond market and the character of the district offering the bonds. The first condition the drainage commissioners can not control, but by

consulting responsible dealers in bonds they can learn whether the money market is such that a bond issue can be marketed at a reasonable price at the particular time. The second condition depends upon the merit of the project itself and upon the manner in which its affairs have been administered from the beginning.

Sale of bonds.—The important principle to be observed in negotiating a sale of bonds is to deal with none but reputable, responsible persons who are financially able to purchase the bonds of the district.

The laws of a number of States require that drainage bonds shall not be sold below a certain amount, while others permit the commissioners to sell the bonds at the best price obtainable. Whatever the law may require, it generally is admitted that the condition of the money market and the character of the security offered in a large measure control the price at which a drainage district or any other enterprise can dispose of bonds.

The best the drainage commissioners can do, so far as the money market is concerned, is to study its condition carefully at the time the commissioners are considering the issuance of bonds. In this study the commissioners can secure valuable assistance from any responsible bonding house. It always is well not to confine investigation to only one or two financial institutions, nor should it be limited to those in the same city.

As to the character of the security offered, the drainage commissioners, by attention to details, by endeavoring to maintain good feeling and interest on the part of the landowners, and by insisting that the attorney take every precaution, can do much to make the bonds command a good price. What frequently is termed a "good law" can not, in itself, make a bond an attractive investment, and unless the bonds look attractive to the man who finally puts his money into them, no drainage district can expect to command a reasonable price for them. The landowners themselves, by cultivating all the land available at the time and by practicing the more approved agricultural methods, can do much to make the bonds attractive. For instance, in certain States, even when the money market is unfavorable, drainage bonds always command a premium; while in other States, even with a favorable market it is difficult to sell them at par, though the laws in some of the States in the latter group may be even more rigid in enforcing the collection of taxes than are those in the States of the former group. The principal reason for the difference seems to lie in the moral responsibility of the landowners for their debts, and the kind of agriculture practiced in the one group of States as compared with the other.

In selling drainage bonds one of two methods usually is followed. Either the drainage commissioners negotiate personally, more or less privately, with a few bonding houses, or by advertising they invite

bids from responsible parties. The latter method is the more generally practiced, especially in the case of districts having a large bond issue. The former method is objectionable and should not be practiced, since the number of houses approached usually is very limited, a condition which obviously results in limited competition and usually means that the district does not realize as much for its bonds as it would if more houses were competing for them. In some sections there has been a tendency to negotiate with one house only. This is exceedingly objectionable, because the district is more or less at the mercy of the house with which it is dealing, and it fails also to get the benefit of valuable suggestions which would be secured by negotiating with a number of houses. Communication with these bond houses should be opened some time before the commissioners arrive at the point where they are ready to issue bonds. In addition, they should advertise in some of the leading financial papers, inviting bids on the bonds when they are ready for sale.

As an illustration of the evils of dealing with only one house, one district was induced to issue \$108,000 in bonds to finance work to cost only \$78,000, the money to remain in the hands of the bond house and be drawn at the rate of \$4,000 a month. It required eight months to start the work, and the bond house had the use of the entire amount without interest, while the bonds were drawing interest that the landowners had to pay. In addition, they had to pay the cost of printing the bonds and for the opinion of the bond house attorney who passed on the legality of the issue.

Another phase which generally needs consideration in cases where bonds are sold without inviting bids is that of agreements for the purchase of the bonds into which many of the bonding houses insist that the drainage district shall enter. These contracts should be examined carefully by the district's attorney. One clause which usually is inserted in such agreements is to the effect that the bonds will be purchased subject to the approval by the bond-house attorney of the proceedings under which the bonds are issued. As no district wishes to sell bonds that are not legal, the provision is a proper one to protect the bonding house, provided it is not abused; but the temptation to take advantage of this clause is not always successfully resisted. One instance will suffice to illustrate the possibility of its abuse. By an agreement containing such a provision a district had contracted, at a time when the bond market was strong, for the sale of its bonds at a certain price. The bonds, however, were not ready for issue until some time afterward. In the meantime the bond market had weakened to such an extent that the bond house felt it could not handle the bonds profitably. Accordingly, the bond house notified the drainage district that its attorney would not approve the proceedings and therefore it could not purchase the

bonds. Later, the district submitted a copy of the proceedings under which the district was organized to the attorney usually employed by the bond house; his opinion was that the proceedings were legal. As before stated, no objection is found to the insertion of a legality clause in an agreement for the purchase of bonds, but it should be inserted in good faith. It would seem that there might be less chance for abuse of such a provision if the clause specifically mentioned the attorney who is to pass upon the proceedings. The contract also should require the bond house to purchase the bonds within a certain time after issue or forfeit its right to purchase.

DEPOSITORY FOR PROCEEDS OF BONDS.

When bond houses are negotiating for an issue of drainage bonds they wish to know where the proceeds of the bonds will be deposited by the district. A few years ago it was the almost universal custom for the commissioners to insist that the funds be turned over to them to be deposited where they saw fit. Usually local banks, to obtain these funds, would offer high rates of interest, 5 and 6 per cent being not uncommon. Of course the local banks loaned out the money at still higher rates. Unfortunately some of these banks frequently were concerned more in the interest returned on the money than in its safety, or they did not possess the necessary organization to make a thorough examination of the security offered. This depositing of the proceeds of bond sales in local banks proved unsound, and in a number of instances disastrous. One district which had deposited \$330,000, lost \$300,000; another lost \$90,000, and another \$60,000. The funds of one district were saved through its attorney, who had learned that the bank was in trouble and immediately withdrew them. The next day the bank closed its doors.

In each of the above districts personal bonds were given, but when the time came to enforce them they were worthless. It may be argued that these losses might have been prevented if the banks had been required to furnish bond by a responsible surety company; this doubtless is true, for no responsible surety company would have given a sufficient bond to these banks. Such refusal to furnish a bond would have suggested at once to the drainage commissioners the danger of depositing with the local banks.

The commissioners should not be tempted by high interest rates. The purpose of a drainage district is not to make money but to construct drainage improvements; therefore, the district's funds should be so invested and protected that they will be available as construction progresses. In determining upon a depository it would seem that the commissioners, in the absence of statutes on the subject, would be acting in the interests of the district by arranging to deposit the funds in that bank which would pay the highest rate of

interest and which could furnish a satisfactory indemnity bond by a financially responsible surety company guaranteeing the funds against loss. To remove the temptation to deposit the proceeds of bonds in questionable banks paying high interest rates, some of the drainage laws have been so amended as to prohibit depositing funds in banks paying more than 4 per cent interest.

In recent years the custom has become quite general to deposit the funds in a large banking institution located in some money center, the district receiving certificates of deposit bearing a fixed rate of interest. This institution is required to furnish an indemnity bond executed by a first-class surety bond house. The certificates of deposit are made so as to mature as it is expected the needs of the district will demand. The account should be in the name of the drainage district and not in that of any individual officer of the district, and it should be subject to be drawn upon only by the proper officer of the district. If the bonds are issued by county officials the proceeds should be deposited to the credit of the district and not with the county funds, for in the latter case the county would receive the interest, whereas it should belong to the district.

USE OF THE FUND.

The money secured from cash payment of taxes and the sale of bonds is to finance the project, which includes organization, administration, and construction expenses. None of this fund should be used for constructing ditches or other improvements which were not included in the plans finally approved by the commissioners and the court. In fact, to divert the fund from the use for which it was raised to some other purpose is illegal. Further, it has been held that where the commissioners diverted funds raised by special assessment for the improvement of a portion of the main ditch to other ditch work, they had no power to levy an additional assessment to replace the fund thus diverted.

PAYMENT OF BONDS AND INTEREST.

COLLECTION OF TAXES.

The only method of raising funds for the payment of bonds and interest as they fall due is by collecting taxes. The method of levying taxes has been discussed, but the prompt collection and the proper use of them are as important as the levy. Whether the taxes levied against each tract are spread at one time over the whole period during which they are to be paid or only from year to year, the commissioners should see to it that the tax collector is furnished in ample time with a list showing the drainage taxes to be collected from the various landowners in the district. In the

best administered districts the proper officials personally prepare these lists so as to avoid any errors. It always is advisable for those who have charge of spreading the levy, especially in the case of a new set of officers who have entered upon their duties recently, to check the annual total tax levy against the total amount shown by the bond register to be needed that year to retire maturing bonds and pay interest on outstanding bonds.

If no bonds fall due during the earlier years, then, unless the law requires otherwise, the taxes levied should provide for no more than interest on the bonds. In some States where county officials serve as the officials of drainage districts the practice prevails of collecting an equal amount each year, though bonds may not fall due until the close of the third year. If the excess above interest requirements were put out at interest for the district, this practice might not be condemned, but usually this excess is merged with the county fund and the county gets the benefit of the interest. This practice certainly does not do justice to the landowners.

Usually drainage taxes are collected at the same time and by the same official who collects State and county taxes. In a few instances, however, the district has its own collector. In the latter cases, for the convenience of the landowners, arrangements sometimes are made with local banks for the payment of taxes at those institutions. Whatever method be followed, the landowners should be reminded when they are notified of the amounts due that severe penalties are attached to drainage taxes if they are not paid when due, and that property can be sold for nonpayment just as for other taxes. Large districts which issue reports to the landowners at stated intervals would do well to emphasize in these reports the necessity for prompt payment of taxes. Landowners not residing in the district should be notified in ample time of the amount of their taxes. It is among these landowners that delinquencies most frequently occur, usually because they are not kept in close touch with developments.

DISPOSITION OF TAXES COLLECTED.

Within a reasonable time after collection of taxes the collectors should be required to transfer all drainage moneys to the drainage district treasurer, from whom they should receive a receipt. If these funds are not received by a certain time, it becomes the duty of the treasurer of the district to make immediate inquiry as to the reason for the delay and to demand the funds. It will not do for the treasurer to delay in making this inquiry, neither can he accept excuses, for at a certain stated time the bonds and interest become due and must be paid, and it is the treasurer's duty to see that funds are on hand for this purpose.

If the bonds and interest coupons are payable at some bank in a money center, which generally is the case, the treasurer should exercise every precaution to see that sufficient money is at the bank in ample time. Carelessness in forwarding funds to the paying bank has caused delay in a number of instances in the payment of both interest and principal, though the taxes actually had been collected and turned over to the treasurer of the district. If the districts involved through carelessness in forwarding the money were the only ones to suffer, such cases might be overlooked; but the failure of one district to meet its bonds and interest when due affects the market for the securities of drainage districts generally. In recent years the drainage statutes of some States have been amended so as to impose severe penalties on officials who fail to perform their duties promptly.

In this matter of carelessness with funds for the payment of outstanding bonds the drainage officials are not alone. There also have been cases where the funds were forwarded to the bank in ample time, but through carelessness of the bank's employees the drainage districts were not given credit promptly. In one case the draft of the drainage district was with the bank at least 10 days before the time for paying interest coupons, and in another at least three days and yet the coupons were marked "no funds" and returned to those who presented them. The district is powerless to guard against such carelessness. However, mention is made of it because the opinion is entertained generally that when delays occur the drainage districts solely are to blame. In such cases, while the fault lies with the bank, the unfortunate part is that drainage districts, as far as the investor is concerned, must suffer.

It sometimes happens also that the proceeds of the bonds sold do not furnish money sufficient to complete the improvements. The temptation then arises to use for completing the work some of the money collected in the form of taxes. It must be remembered, however, that this money is collected to pay interest and principal of bonds as they fall due, and a sufficient amount of the taxes collected must be set aside in a separate fund for that purpose. Again, as sometimes happens, funds are needed for maintenance purposes in portions of the constructed work before the entire project is completed. In such cases the same temptation again arises. Nothing but a shortage of funds to meet principal and interest of bonds can result from a diversion of money raised by taxation to construction and maintenance purposes, and therefore under no circumstances must any such diversion be made. If sufficient funds have not been provided to complete the improvements, or if maintenance work becomes necessary, all laws provide methods for raising the money needed.

RECORDS OF DRAINAGE DISTRICTS.

Prior to this the thought must have suggested itself that to promote and administer drainage districts properly some system of records is essential. Just what form these records should assume or how detailed they should be is a matter for the commissioners of each district to determine. A system of records necessary in a district costing a million or more dollars would be unnecessarily detailed, complicated, and expensive for a district costing much less. What is needed is a set of records from which the true condition of the district may be ascertained readily. The records relating to the legal phases of the district frequently are kept by its attorney, but these should also appear properly arranged and complete in the files of the district, as they form part of the records of the district.

DRAINAGE RECORD.

A full and complete record of all proceedings relating to the drainage district, including oaths of officers and all contracts, should be entered in the drainage record. As the attorneys to whom the bonds are submitted for approval require affidavits with regard to publishing, posting, and serving notices, such affidavits should be secured at the time the notices are published and should be a part of the drainage record. No action should be taken by the commissioners unless through the form of a resolution. Especially should every authorized expenditure be supported by a resolution, and all such resolutions should be entered in full. All agreements in settlement of damages, contracts with attorneys, engineers, contractors, and bond houses also should be entered in detail. Under many of the laws every action the commissioners take must be entered in the record. In States which do not require the entering of all actions it is highly desirable that the affidavits, agreements, and contracts above mentioned should be recorded in full, and that the drainage record should contain authority for every entry made in the various accounting records.

ACCOUNTING SYSTEM.

When it comes to determining upon a system of accounting for the district there always is a possibility that the officials of the district will run to extremes. Either the records are so few and the forms so poorly adapted to the needs of the district as to render them practically useless, or they are so numerous and detailed, and perhaps poorly designed, as to make them both unsatisfactory and highly expensive. The accounting methods of the district should be based on sound accounting practice. As it happens frequently that the treasurer of the district, who usually is the accounting officer, is a landowner in the district who knows little or nothing of accounting methods, the records which it is decided to use should be so simple

that they can be understood by the average person. They also must be sufficiently detailed to show the real financial condition of the district at all times. That system of accounting which is simple and composed of few records and yet always shows the true condition of the district therefore is the best. In many of the larger districts it has been found economical to employ public accountants to design the accounting forms and to instruct the accounting officer of the district in the use of the forms.

Whether the district costs only a few thousand or several million dollars, it is felt that at least the following records or books should be used in every district:

1. Book of receipts and disbursements.
2. Check or warrant book, supplemented by a petty cash book.
3. Bank book in district's name.
4. Full and complete assessment register.
5. Bond register.

Book of receipts and disbursements.—The book of receipts and disbursements operates on the same principle as an ordinary cash book. For convenience, it is well to distribute disbursements to the following items:

1. Construction.
2. Administration.
3. Retirement of bonds.
4. Interest on bonds.
5. Maintenance.
6. Miscellaneous expenses.

Each of these items is self-explanatory. Some question, however, might be raised as to whether engineering supervision of the construction work should be charged to the "construction account" or to the "administration account." As far as the financial condition of the district is concerned, it can make no difference, but for convenience, if charged against construction, it should be so separated from the contractor's account that the actual amount paid to the contractor may be ascertained easily.

Check or warrant book.—As a check against expenditures, all disbursements, except for small items, should be made by checks or warrants, which should show on their face the amount for which they are drawn, to whom they are payable, and for what purpose. It is in the interest of good administration to pay small items of expense in cash. The fund for paying these small items should be secured at such times as the treasurer may need money by drawing a check for a lump sum to his order. To substantiate such disbursements, the treasurer always should demand bills properly receipted. When it becomes necessary to replenish his fund he should present an itemized statement, accompanied by the receipts, to the drainage commis-

sioners and have them make another check in his favor. All canceled checks or warrants should be preserved carefully.

Bank book.—All money received should be deposited in bank daily. Under no circumstances should it be disbursed without being deposited. A local bank of good standing can be used for making these deposits. The books needed for recording deposits will be furnished by the bank. These daily deposits will not be large except when the annual receipts from taxes are being turned over by the collector. As it always becomes necessary shortly after taxes are collected to forward money to the institution paying the maturing bonds and interest coupons, the chances of loss by using the local bank for this purpose are small.

Assessment register.—As soon as the drainage commissioners have determined over what period unpaid taxes shall extend, and in what amounts bonds shall mature, a full and complete assessment register should be prepared showing the taxes assessed against each piece of property and the total amount of taxes to be collected each year. Provision should be made in this book to give proper credit to the landowners as taxes are paid.

Bond register.—The bond register should show by years the total amount required annually to meet interest due on outstanding bonds and the total number and amount of bonds to be retired each year. If this book is consulted and compared with the assessment register before submitting the drainage tax list to the collector there should be little opportunity for making an error. Where a county official is required by law to act as secretary or treasurer of a drainage district the drainage commissioners should endeavor to prevail upon him to keep the records of the drainage district independent of general county records, and also to keep all drainage funds independent of county funds.

Annual audit and report.—Under many of the laws the drainage commissioners are required to submit to the court an annual report of their activities, accompanied by a statement showing receipts and disbursements and the financial condition of the district on the day the statement was prepared. Other laws require that the commissioners shall have the books of the district audited annually by competent public accountants, whose report shall be made public to the landowners at an annual meeting to be called by the commissioners. Whether the law requires it or not, the value to almost any district of such an audit and its publication is apparent, since it serves as a check on the officials and tends to make them do things in a business-like manner. Then, too, it serves to inform landowners of the progress that is being made and to keep them interested in the project, and anything which keeps the interest of the landowners in a drainage district should receive every consideration. Again, many clients of

bond houses feel that the proceeds of the bonds may not be applied properly, and hence they do not wish to purchase drainage bonds, but it has been said by representatives of bond houses that when their clients are informed that an annual audit will be made by disinterested public accountants the investors invariably are satisfied. If the drainage commissioners, in negotiating with bond buyers for the sale of the bonds, will inform these buyers that a public accountant will audit the books of the district annually, it is highly probable that the bonds will command a higher price.

ADMINISTRATION OF DRAINAGE DISTRICTS.

SELECTION OF DRAINAGE COMMISSIONERS.

Under laws requiring county officials to act as drainage officials the property owners have no choice in the selection of officials except through the general election of county officials. In States where the property owners in each district select their own drainage officials the board of drainage commissioners usually is composed of three or five resident landowners. The commissioners select a president, a secretary, and a treasurer from their own number, except in States in which the office of treasurer is filled by the county treasurer.

Frequent reference has been made to the drainage commissioners and other officials into whose hands the administration of the district is intrusted, but nothing has been said concerning the qualifications of the persons who should be selected for these positions. Unfortunately, in too many instances little attention has been given to this selection, the opinion prevailing that the administration of a drainage district does not require men of ability. There also has been a tendency among those having the largest holdings to use their influence to place themselves on the board of commissioners, quite forgetting that the mere fact that a man has large holdings does not necessarily qualify him to serve as an officer. When landowners realize fully that a drainage project may be sound from an engineering and economical standpoint and still fail because the administration of its affairs has fallen into incompetent hands, greater care will be exercised in selecting the commissioners. It requires something more than a good project to make a success. Poor management will wreck the best drainage district as surely as it will a large commercial or industrial enterprise. The one great criticism that is made against drainage districts by investment bankers who purchase drainage bonds and by prominent attorneys who pass on their legality is that the administration too frequently is incompetent.

When it comes to selecting the persons who are to serve as drainage commissioners the landowners should make a canvass of their number with a view to selecting only the most competent. In making this selection, the business capacity of those under consideration, the

manner in which they handle their personal affairs, their integrity, their reputation for meeting personal obligations promptly, the confidence the people generally place in them, their ability to adjust differences, and such other considerations as stamp one man as being a superior executive should be weighed carefully. Another highly essential quality which should be sought in those who are to serve as drainage commissioners is their capacity to forget personal interests and to view their own holdings solely on the same basis as those of other landowners.

To these qualifications should be added impartiality and courage in the performance of duties. There may be times when the members of a drainage commission may be approached by friends seeking certain favors, but the commissioners must not only be fair in all their dealings and extend no favors, but they must have the courage to enforce the law in all cases, especially those sections which relate to the collection and payment of taxes.

When bankers find commissioners possessing qualifications such as those enumerated in charge of the affairs of drainage districts, they at once have confidence in the project and will pay a larger price for the bonds than when they find persons administering the district who are insincere, unsound in judgment, and irregular and unsystematic in the conduct of their own affairs.

DUTIES OF DRAINAGE COMMISSIONERS.

It may be said in a general way that the duties of the drainage commissioners are to administer the district in accordance with the law. Under many laws the commissioners are permitted to select a secretary and treasurer, the two offices usually being filled by the same person. When the selection of this official is not confined by law to a member of the board or to some one among the landowners, the commissioners should be free to go outside the district if they feel that a more competent person can be obtained by so doing.

In the selection of an engineer to design the improvements and of contractors to construct them, the commissioners should make every effort to secure as competent and responsible persons as are obtainable with the money at their disposal.

Under many of the laws the drainage commissioners are required to advertise for bids before awarding the construction work. Frequently all the law requires is that such notices be given in local papers. That the district may receive bids from concerns which are equipped to do such work on a large scale and at a minimum price, the required notice should be inserted also in at least one or two magazines or journals devoted to the interests of engineering and construction work. Even if the law does not require the commissioners

to advertise for bids covering the construction of the improvements, it always is advisable to do so. These advertisements should state that all bids received will be opened in public on a fixed day at a certain place. The commissioners should reserve the right to reject any or all bids. If the commissioners decide to award the contract to one of the bidders, they should make such award as soon as practicable.

The commissioners should insist that adequate bonds by financially responsible surety houses be furnished by the treasurer, engineer, contractor, and any banks or other institutions which may be used as depositories of the district's funds. The matter of contracts with the attorney, engineer, contractor, and others has been discussed.

When about to sell an issue of bonds the commissioners should invite wide competition. This can be done by advertising for bids in some of the leading financial journals or by communicating directly with reputable investment bankers who deal in drainage bonds. It makes little difference which method is followed so long as competition is not limited to a few.

The work of the commissioners in connection with assessment of benefits has been discussed. The levying of taxes regularly and the enforcement of their prompt collection are subjects to which the commissioners should give close attention. Bondholders can look to none but the commissioners for their interest and principal; hence it is the commissioners' duty to see that tax collections are made promptly and the funds placed in the hands of the proper parties for disbursement. The commissioners are the custodians of the welfare of the district. It is their duty not only so to administer the district as to be able to sell bonds at a good price and to see that construction is well performed, but also to see that the credit of the district always is maintained and that its bonds always are paid promptly. In the interests of drainage districts generally, the commissioners of no district can afford to permit a failure of payment of interest coupons and bonds as they mature, for, as was recently said by an eminent financier: "The man who has been disappointed in his hope of a safe and paying investment, for whom either principal or interest fails, who in time of need is obliged to sell out at a loss, has a long memory, an easy tongue, and a bitter heart."

The drainage commissioners alone are responsible for the proper use of the fund, and, therefore, they should see to it that such records are kept as will enable them at all times to ascertain exactly the financial condition of the district. Not only should the records give this information, but they should be orderly and bear evidence that the man back of them is equal to the position. This may seem a small matter, but its effect will be reflected in the price the district will be offered for its bonds.

NECESSITY FOR ADEQUATE MAINTENANCE.

Finally, as custodians of the drainage system, the drainage commissioners should remember that a drainage system is a "wasting property"; that is, it deteriorates in efficiency as time passes. This suggests the necessity of provision for adequate maintenance and repair. The efficiency of the system as constructed will be maintained considerably longer in a district in which the commissioners have taken precautions to see that undesirable refuse from adjoining lands, which would obstruct the flow, has not been dumped into the ditches. Again, the necessity of maintenance can be delayed if the drainage commissioners will instruct landowners in the proper methods of constructing farm bridges across open ditches and of constructing outlets of open and tile drains into the main ditches. In one of the largest districts in the country the drainage commissioners have found it to the interests of the district to have plans prepared by its engineer showing how to construct bridges and outlets. Copies of these plans are posted at various public places in the district, and are also sent to landowners upon request.

Under most laws the drainage commissioners are charged with the duty of maintaining the main ditches in an efficient state.

The rapidity of deterioration in open ditches varies in different sections, but if the bottoms and sides of the ditches are permitted to grow up with weeds, brush, and saplings, experiments show that the efficiency of the ditches is decreased as much as 35 per cent. When once deterioration starts it progresses rapidly. The preservation of drainage improvements, therefore, should begin when deterioration first becomes noticeable. The drainage commissioners should have the engineer inspect all ditches annually and submit an estimate of the amount needed for proper maintenance. A tax to be known as a "maintenance tax" should be levied. The funds collected for this purpose should be kept separate from and accounted for independently of other drainage taxes and funds. The failure of the commissioners to keep the drainage improvements in proper repair will have the result that the landowners will not receive the benefits which otherwise they would receive, and this in turn will cause the landowners to become dissatisfied and pay their taxes grudgingly. Both the commissioners and the landowners must remember that if full benefits are to be derived from drainage it is just as important to maintain the system properly as it was to construct the system in the first place. Constant inspection and maintenance must follow construction, otherwise, in the course of time, the money spent on construction will cease to give returns.

SUMMARY.

Before promoting a drainage district consideration should be given to the economic conditions prevailing in the section in question, the agricultural value of the soil, and the demand for more agricultural land on the part of resident landowners. The cost of draining the land as compared with the market prices of other lands possessing equal agricultural value and not needing drainage should be learned. The sentiment of the property owners toward drainage should be ascertained. The success of the project requires the cooperation of more than a bare majority. Unless funds sufficient to construct adequate improvements can be obtained, the undertaking of the project generally would not be warranted. Incomplete or inadequate drainage works are invariably a poor investment. In determining these factors it should not be forgotten that every project which is possible from an engineering standpoint is not necessarily economically practicable under existing conditions.

The organization of drainage districts for agricultural purposes is made possible by special laws which prescribe the various steps to be taken. Since drainage districts come into being only through the law, it is highly essential that the law be complied with in every detail. The need of retaining a competent attorney is apparent at the very beginning.

The three principal reasons for forming a drainage district of wet lands which it is desired to reclaim are:

1. To provide a method of equitably distributing costs among the landowners and a means of collecting such taxes.
2. To issue bonds to finance the district.
3. To obtain authority to condemn whatever land may be needed for the general use of the district.

Each of these factors is vitally important to the promotion of the project. The second factor relies on the first to the extent that only through a legal distribution of costs and prompt collection of taxes can funds be raised for paying the bonds at maturity. Drainage bonds have no value unless there is some legal method of enforcing their payment, and the only method the law prescribes is through the levy of taxes. Unless these taxes are enforceable the bonds must fail. The necessity of complying strictly with the requirements of the law leading up to the levy of taxes, therefore, must be self-evident. Before the first paper is prepared and filed, attorneys for districts should realize fully that each step in the procedure leads up to the issuance of bonds, and that any doubtful question of legality of the bonds which would affect their security can not be decided in favor of the district. In carrying into effect the various provisions of the law the attorneys should discard forms unless they have checked

them carefully to see that they comply with the requirements of the law. Do not follow forms, but follow the law, is good advice for every board of drainage commissioners to give to its attorney when it retains him. If it becomes necessary to condemn any land, the procedure prescribed by the law must be followed in every detail.

The drainage commissioners must insist on employing the best talent they can afford to design and construct the improvements. So-called cheap engineering and construction must be guarded against. Bids for construction which on their face appear a great deal less than others should be scrutinized closely. The awarding of legal, engineering, or construction work to so-called "home firms or companies," simply because they represent home or local talent, must not be practiced. The interests of the landowners demand the best and that which is the most economical in the end. The importance of employing reputable consulting engineers to pass upon the plans before their final approval and adoption should not be overlooked.

In selecting officials to administer districts the landowners should be guided by the same principles that govern the selection of directors for successful commercial and industrial enterprises. The drainage commissioners always should remember that they are the custodians of the district and the guardians of the interests of the landowners and that all their actions should be for the welfare of the district and the property owners. To their lot falls the task of maintaining interest and harmony. In appointing engineers, attorneys, and other assistants, in awarding contracts, and in selling bonds the commissioners should so govern themselves as to win the confidence of the landowners. Above all, from their first until their last meeting, the commissioners should keep in mind that the severest criticism has been directed against the management of districts and that lax and inefficient administration always is reflected in the price paid for the bonds.



